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September 9, 2005

To: Tom Munson and Doug Jensen
State of Utah
Department of Natural Resources
594 West North Temple
Suite 1210
P.O. Box 145801
Salt Lake City Utah 84114-5801

From: Tom Newman
Corporate Geologist
Holcim (U.S.) Inc.
1405 Parkwood Drive
Fort Collins Colo. 80525

Subject: Reply to:
LMO Requirement, Vegetation and Soil Baseline Assessment
Holcim (US) Inc.,
Devil's Slide Quarry - M/029/001
Morgan County, Utah,

Dear Mr. Munson and Mr. Jensen,

Attached is the Vegetation and Soil Baseline Assessment for the Devil's Slide Quarry.

This Assessment is a requirement for the issuance of Holcim (US) Inc. LMO.

Your efforts are most appreciated.

Sincerely,



Tom Newman, GPG, RG
Corporate Geologist

Cc: Holcim (US) –
Brian Ward
John Todd
Lance Stephens
Ken George
Kevin Ovard
Penny Taylor

RECEIVED

SEP 13 2005

DIV. OF OIL, GAS & MINING

M-029-001

Holcim, Inc
Vegetation and Soil Baseline Assessment

Devil's Slide Mine

Prepared for:
Holcim, Inc
Devil's Slide
6055 E. Croydon Road
Morgan UT 84050

Prepared by:
WP Natural Resource Consulting, LLC
PO Box 520604
SLC, UT 84152

INTRODUCTION

Holcim, Inc is required to submit a new LMO to the State of Utah Division of Oil Gas and Mining (DOGM) to continue mining operations at their Devil's Slide plant. The purpose of this report is to provide a baseline characterization of soils and vegetation according to the requirements set forth by DOGM as listed on Form MR-LMO. This information will assist in the design of a site appropriate and effective reclamation plan.

SITE DESCRIPTION

VEGETATION

The mine property lies on the eastern boundary of Morgan County along Highway 84 just west of Henefer. The area receives 17-20 inches of precipitation annually (79% of which comes in November – June) and slope steepness varies from 20 to 60%. The area is chiefly dominated by sagebrush (*Artemisia tridentata* var. *vaseyana*) occupying gentler slopes, with mountain shrub communities with species such as big toothed maple (*Acer grandidentatum*) and serviceberry (*Amelanchier utahensis* and *A. alnifolia*), inhabiting protected drainages between the open slopes. The understory includes perennial grasses such as bluebunch wheatgrass (*Agropyron spicatum*), Sandberg's bluegrass (*Poa secunda*), and muttongrass (*Poa fendleriana*), and perennial forbs such as lupine (*Lupinus sericeus*) and wild onion (*Allium cernuum*). Vegetation cover in the sagebrush community type is 39.4% +/- 9.5 and vegetation cover in the mountain shrub community averages 74.9% with a standard deviation of 11.3%. Vegetation cover jumps to 50.5% for the sagebrush community and 79.2% for the mountain shrub community if non-native annual grasses are included. From an ecological perspective, both vegetation communities in the area generally have good structure and age distribution. However, species diversity is somewhat low reflecting past land uses and conditions (grazing, drought) and invasive species (particularly musk thistle) are beginning to find their way into the vegetation communities. Figure 1 shows an overview of the undisturbed state of the vegetation communities surrounding Devil's Slide Mine.





Figure 2. Overview of vegetation communities at Devil's Slide.



Figure 3. Close up of vegetation communities at Devil's Slide

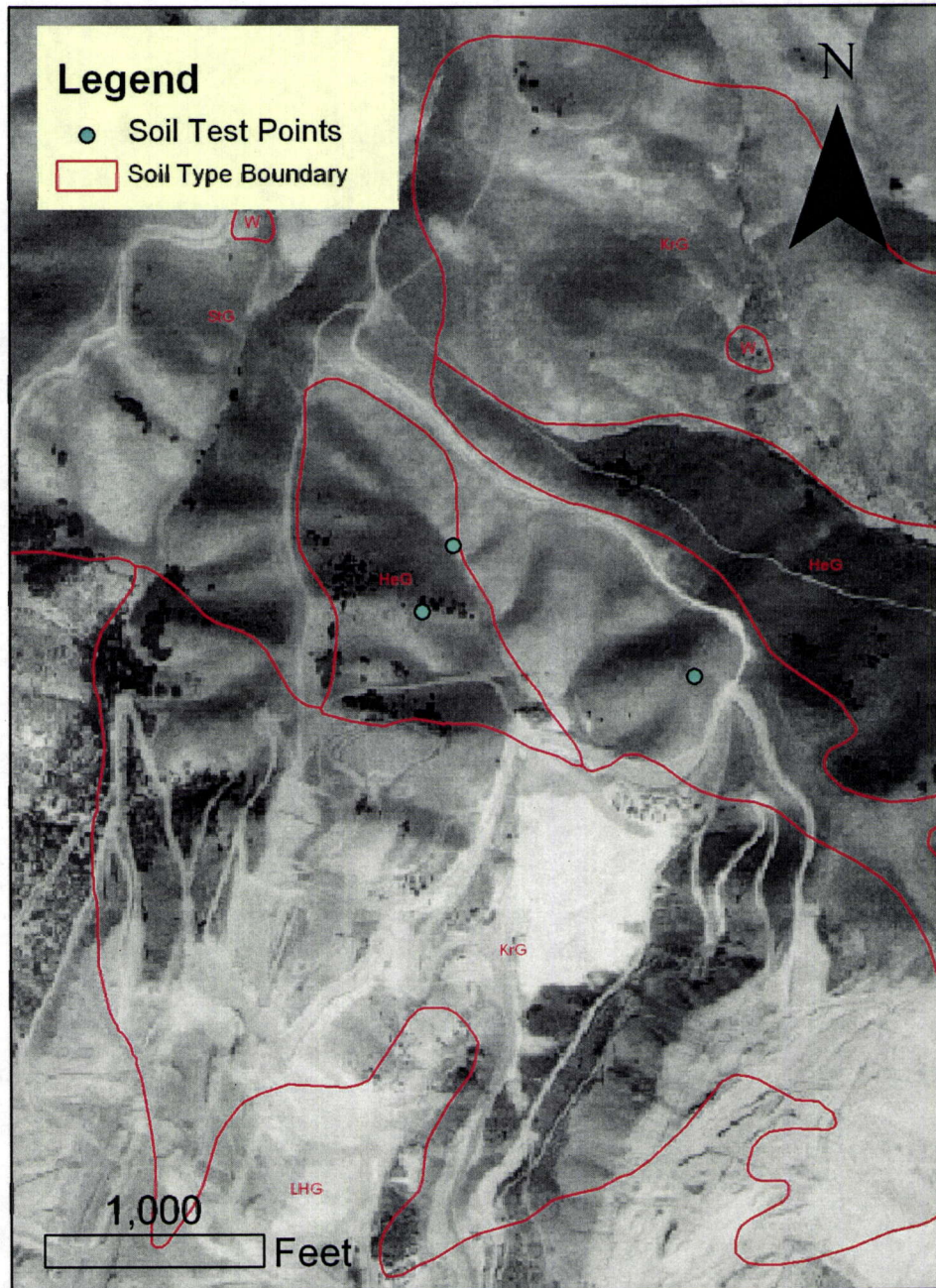


SOILS

The 1981 soil survey published by the Soil Conservation Service (now the Natural Resource Conservation Service) covers the area of the mine in their Morgan Area soil survey.

This soil survey was used in conjunction with soil tests in 3 areas to ascertain the character of the soils in the area. Three soil samples from the area were sent to the USU soils laboratory to determine pH, EC, CEC, %OM, N, P, SAR and K (see Figures 2 for soil type locations and sample locations).

Figure 4. Soil Type Boundaries and Soil Test Points



The following are descriptions of the various soil types in the area:

Henefer loam –(HeG)

This soil is on the north and east facing slopes in the area on 40-60% slopes. It is very deep and well drained, and is formed from sandstone and quartzite. The surface layer is about 16 inches thick and is described as a very dark brown loam. The subsoil is dark brown gravelly silty clay loam or silty clay down to 60 inches deep. Rock fragment percentage increases as soil depth increases. Permeability is slow, available water capacity is moderately high, and erosion hazard is high, mainly due to slope. This soil is important for watershed health since it can hold significant amounts of water and supports dense vegetation to keep the soil in place. See Appendix for soil test results in this soil type (taken from the areas of transect 2 of the mountain shrub vegetation type).

St Mary's-Hoskin (StG)

This soil is a mixture of St. Mary's and Hoskin cobbly loams. These soils are generally found on south and west facing slopes in the area on slopes between 30 and 50% steepness, and occupies a large area within the mine property and north of the property. These soils originated from a weathered conglomerate of quartzite and sandstone. The soil is deep and well drained, with a surface layer of cobbly loam about 10 to 14 inches thick, and a subsoil layer of reddish brown very cobbly loam or very cobbly sandy clay loam 14 to 30 inches deep. Some soil in the area has a deeper layer of very cobbly sandy loam about 30 inches thick, but in some areas this stratum is not present. Therefore the bedrock can lie between 22 to 60 inches in depth. Permeability is moderate, available water capacity is low, and the erosion hazard is high, mainly due to slope. See appendix B for soil test results in this soil type as well as the others.

Figure 5. Exposed soil profile in the St. Mary's Hoskin cobbly loams



Kilfoil rock outcrop complex (KrG)

This soil is on south, west and east facing hillsides ranging from 40 to 60% slope. Most of this complex is the Kilfoil loam and the rock outcrop is interspersed within the Kilfoil loam and occurs on ridges and is exposed on ledges and outcroppings of bare rock. The Kilfoil loam was formed in materials weathered from sandstone and shale. The Kilfoil loam has a surface layer about 3 inches deep and the subsoil is a dark clay loam about 18 inches thick, and weathered fractured sandstone is at about 30 inches in depth. The surface layer is mildly alkaline and calcareous, whereas the subsoil is moderately calcareous and can be strongly alkaline. The erosion hazard high, and the water holding capacity is moderate. This soil is/was present under the upper areas of the active mine.

Lithic haploxerolls (LHG)

This is the soil type that was/is under much of the present mine property. Much of this soil type is considered a rock outcrop, but there are pockets of soil development within this type. The Kilfoil loam is within this type as well as the Hoskin cobbly loam. Within the LHG type, a typical surface layer is variable but is a brown stony loam about 6 inches thick with a stony clay loam underlying the surface layer. The bedrock is found between 10 and 20 inches. The soil is strongly calcareous and moderately alkaline, the water holding capacity is very low, and erosion hazard is high.

Agassiz rock outcrop (AaG)

This soil is generally on south and west facing mountainsides of 40-70% slopes. It is found on the south side of Highway 84 under sagebrush plot #10. The soil is shallow (bedrock is between 14 and 19 inches deep), and formed from materials that weathered from limestone. The surface layer is a silt loam about 8 inches, and the underlying layer is 6 inches of a cobbly silt loam. Limestone is found at about 14 inches, thus the water holding capacity is very low, and the erosion hazard high.

Horrock's rock outcrop complex (HvG)- south side of highway under MS

This soil complex is generally found on south and west facing mountainsides of 40-70% slopes. This soil type is on the The soil originated from materials weathered from limestone. The surface layer is a gravelly loam about 15 inches thick. The surface layer becomes more cobbly deeper in the profile. The subsoil is about 22 inches and is a very cobbly clay loam. Weathered shale lies at about 45 inches deep. Water holding capacity is low and erosion hazard is high.

METHODS

Data on vegetation cover and species richness (diversity) was collected on July 8, 2005. To ascertain the range of variability for vegetation cover, ground cover, and species composition, 10 transects of 100 feet in each vegetation type were established in areas determined to be representative of each of the vegetation types in the area (See Figures 6 and 7). Once within a stand of typical vegetation, a pin was spun to randomly determine the azimuth of the transect. Every foot, a point was taken and recorded (plant species, rock, litter, bare ground or gravel). Only aerial cover was determined in this manner, thus total ground cover plus bare ground must be equal to 100%. However, it is also important to consider the density of the understory vegetation stratum (grasses and forbs), particularly in the mountain shrub communities, which will bring the total vegetation cover over 100%. The photos of the mountain shrub community



show the density of the grasses and forbs underneath the large shrubs. Ocular estimates of the understory vegetation ranged from 15 to 50% in the mountain shrub community.

Figure 6. Vegetation transect locations on the north side of Hwy 84

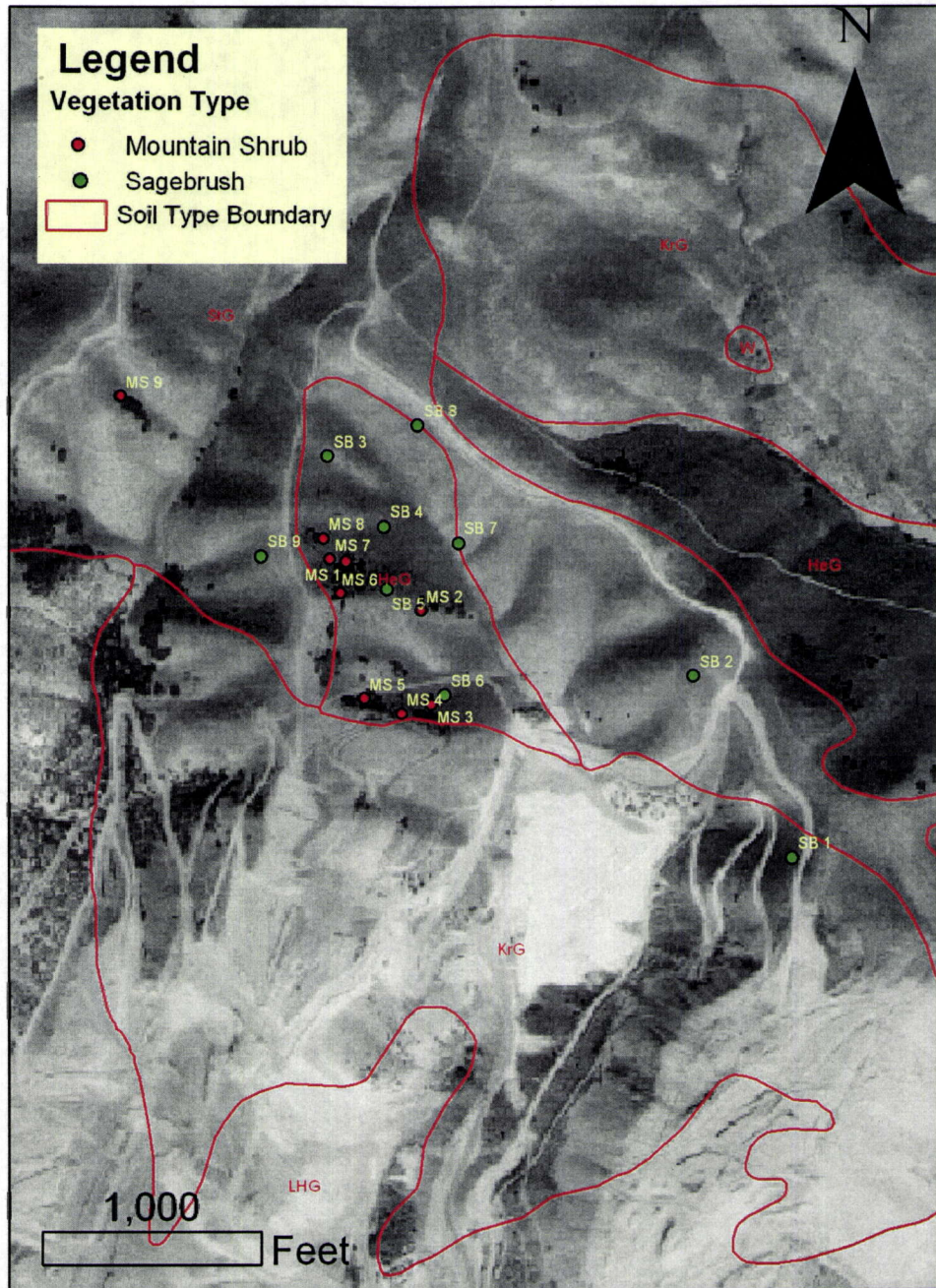


Figure 7. Vegetation transect locations on the south side of Highway 84



The results of the point intercept method for aerial cover for the ten transects in each vegetation type were then averaged and a standard deviation was determined. Vegetation species that were



Devils' Slide Soil and Vegetation Baseline Assessment

encountered outside transect boundaries were also recorded. Vegetation cover was calculated both including the non-native annual grasses and excluding them. Relative covers were also calculated with and without the inclusion of the weedy annual grasses. In many cases, the inclusion of weedy annual grasses in vegetation cover give artificially high cover values since it is better able to establish than its native counterparts.

RESULTS

Vegetation cover was tabulated both including and excluding annual non-native grasses. Non-native annual grasses can give artificially high vegetation cover estimates, since they are better able to establish than their native counterparts in the interspaces of the vegetation community. The sagebrush cover type had a cover of 39.4% +/- 9.5% excluding non-native annual grasses. If the annual grasses are included, the vegetation cover estimate jumps to 50.5%. Mountain big sagebrush (*Artemisia tridentata* var *vaseyana*) accounted for almost half of the vegetation cover at 45% relative cover, while cool season perennial grasses accounted for almost one quarter of the cover at 24%. Perennial forbs accounted for almost 8% of the cover. Litter accounted for 35% of the total cover, while rock accounted for about 9% of the total cover and bare ground was minimal at 7%.

The mountain shrub community averaged 74.9% +/- 11.3% aerial cover excluding annual grasses and 79.2% if annual grasses are included. Big toothed maple (*Acer grandidentatum*) dominated the vegetation cover at 62% of the relative cover. Shrubs such as snowberry (*Symphoricarpos oreophilus*) and sagebrush accounted for about 28% of the vegetation cover. Aerial cover of perennial grasses and forbs totaled 4% of the relative cover. The understory vegetation (not accounted for in aerial cover estimates) varied from 15 to 50% cover. Litter averaged 15% +/- 8%, rock was 14 +/- 5%, and bare soil was a minimal 3 +/- 1.5%. See Tables 1 and 2 for complete tabulated results.

DISCUSSION

The soils underlying the vegetation communities at the Devil's Slide property are relatively well developed and thus would serve as appropriate growth medium for revegetation activities. It is very helpful to salvage and/or direct haul soil for revegetation purposes. If it is necessary to store the soil until it is needed, it is best to store the topsoil in a separate stock pile than the subsoils. The topsoil is generally the most fertile and contains native seed propagules that can naturally establish in reclaimed areas to ultimately reduce the cost of revegetation.

The ranges of the vegetation cover estimates for both the sagebrush and mountain shrub communities at the Devils' Slide mine property are typical for these native communities. In order to achieve 70% of the native cover to be considered reclamation success, the combination of direct hauling topsoil and the following seed mixes for each of the vegetation communities is recommended.



Table 1. Tabulated Results of Sagebrush Vegetation Community Type

Common Name	ScientificName	Avg	StDev	StErr	Low	High	Rel Cover (annual grasses included)	Rel Cover (annual grasses not included)	Frequency	
Cool season perennial grasses										
Bluebunch wheatgrass	Agropyron spicatum	6.100	4.581	1.449	0.000	14.000	12.06	15.48	90.00	
Basin wildrye	Elymus cinereus	<1								
Indian ricegrass	Oryzopsis hymenoides	<1								
Big bluegrass	Poa ampla	0.500	1.581	0.500	0.000	5.000	0.99	1.27	10.00	
Sandberg's bluegrass	Poa sandbergii	2.700	3.368	1.065	0.000	10.000	5.34	6.85	70.00	
Nelson's needlegrass	Stipa columbiana	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00	
Sub-total							18.59	23.86		
Introduced perennial grasses										
Kentucky bluegrass	Poa pratensis	0.300	0.675	0.213	0.000	2.000	0.59	0.76	20.00	
Sub-total							0.59	0.76		
Annual grasses										
Japanese brome	Bromus japonicus	1.400	2.503	0.792	0.000	6.000	2.77		30.00	
Cheatgrass	Bromus tectorum	6.800	10.053	3.179	0.000	27.000	13.44		60.00	
Bulbous bluegrass	Poa bulbosa	2.900	9.171	2.900	0.000	29.000	5.73		10.00	
Sub-total							21.94			
Perennial forbs										
Yarrow	Achillea lanulosa	0.800	2.201	0.696	0.000	7.000	1.58	2.03	20.00	
Wild onion	Allium cernuum	0.400	0.699	0.221	0.000	2.000	0.79	1.02	30.00	
Pacific aster	Aster chilensis	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00	
Sego lily	Calochortus nuttallii	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00	
Larkspur	Delphinium sp	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00	
Fleabane	Erigeron spp	0.300	0.675	0.213	0.000	2.000	0.59	0.76	20.00	

Table 1. Tabulated Results of Sagebrush Vegetation Community Type

Common Name	ScientificName	Avg	StDev	StErr	Low	High	Rel Cover	Rel Cover	Frequency
Bedstraw	Galium septentrionalis	<1							
Stickseed	Hackelia floribunda	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00
Lupine	Lupinus sericeus	0.200	0.422	0.133	0.000	1.000	0.40	0.51	20.00
Beardtongue	Penstemon sp	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00
Dandelion	Taraxacum officinale	0.200	0.632	0.200	0.000	2.000	0.40	0.51	10.00
American sweet vetch	Vicia americana	0.700	1.059	0.335	0.000	3.000	1.38	1.78	40.00
Sub-total							6.14	7.87	
Annual and biennial forbs									
Musk thistle	Carduus nutans	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00
	Cordylanthus wrightii	0.700	1.337	0.423	0.000	4.000	1.38	1.78	30.00
Jim Hill mustard	Sisymbrium altissimum	0.200	0.632	0.200	0.000	2.000	0.40	0.51	10.00
Pennycress	Thlaspi arvense	1.000	1.563	0.494	0.000	5.000	1.98	2.54	50.00
Salsify	Tragopogon dubius	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00
Sub-total							4.16	5.33	
Sub-shrubs									
Louisiana sage	Artemisia ludoviciana	0.900	1.370	0.433	0.000	4.000	1.78	2.28	40.00
Oregon grape	Mahonia repens	0.600	0.966	0.306	0.000	2.000	1.19	1.52	30.00
Sub-total							2.97	3.81	
Shrubs									
Serviceberry	Amelanchier alnifolia	0.400	1.265	0.400	0.000	4.000	0.79	1.02	10.00
Utah serviceberry	Amelanchier utahensis	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00
Mountain big sagebrush	Artemisia tridentata var vaseyana	18.000	9.989	3.159	0.000	36.000	35.57	45.69	90.00
Rubber rabbitbrush	Chrysothamnus nauseosus	3.600	5.082	1.607	0.000	12.000	7.11	9.14	40.00
Viscid rabbitbrush	Chrysothamnus viscidiflorus	0.600	1.265	0.400	0.000	4.000	1.19	1.52	30.00
Snowberry	Symphoricarpos oreophilus	0.300	0.949	0.300	0.000	3.000	0.59	0.76	10.00
Sub-total							45.45	58.38	

Table 1. Tabulated Results of Sagebrush Vegetation Community Type

Common Name	ScientificName	Avg	StDev	StErr	Low	High	Rel Cover	Rel Cover	Frequency	
Cacti and succulents										
Prickly pear	Opuntia polyacantha	0.100	0.316	0.100	0.000	1.000	0.20	0.25	10.00	
Sub-total							0.20	0.25		
Total Vegetation Cover with Annual grasses		50.500								
Total Vegetation Cover (without annual grasses)		39.400	9.524	3.012	26.000	56.000			100.00	
Litter		35.000	7.008	2.216	23.000	46.000			100.00	
Rock		9.375	8.651	3.059	2.000	28.000			100.00	
Bare Soil		7.000	2.944	0.931	3.000	11.000			100.00	
Total Ground Cover		93.000	2.944	0.931	89.000	97.000			100.00	

Table 2. Tabulated Results for the Mountain Shrub Community Type

Common Name	ScientificName	Avg	StDev	StErr	Low	High	Median	RelCov	RelCover (without annual grasses included)	Freq
Cool season perennial grasses								(w/ annual grasses)		
Bluebunch wheatgrass	Agropyron spicatum	1.000	1.633	0.516	0.000	4.000	0.000	1.26	1.34	30.00
Slender wheatgrass	Agropyron trachycaulum	0.100	0.316	0.100	0.000	1.000	0.000	0.13	0.13	10.00
Sandberg's bluegrass	Poa sandbergii	0.100	0.316	0.100	0.000	1.000	0.000	0.13	0.13	10.00
Nelson's needlegrass	Stipa columbiana	0.100	0.316	0.100	0.000	1.000	0.000	0.13	0.13	10.00
Sub-total								1.65	1.74	
Introduced perennial grasses										
Kentucky bluegrass	Poa pratensis	1.200	2.394	0.757	0.000	7.000	0.000	1.52	1.60	30.00
Sub-total								1.52	1.60	
Annual grasses										
Japanese brome	Bromus japonicus	5.100	3.872	1.224	0.000	13.000	0.055	6.44		80.00
Cheatgrass	Bromus tectorum	0.900	2.846	0.900	0.000	9.000	0.000	1.14		10.00
Sub-total								7.58		
Perennial forbs										
Yarrow	Achillea lanulosa	0.800	1.033	0.327	0.000	3.000	0.005	1.01	1.07	50.00
Wild onion	Allium cernuum	0.100	0.316	0.100	0.000	1.000	0.000	0.13	0.13	10.00
Pacific aster	Aster chilensis	0.100	0.316	0.100	0.000	1.000	0.000	0.13	0.13	10.00
Indian painbrush	Castilleja chromosa	0.200	0.632	0.200	0.000	2.000	0.000	0.25	0.27	10.00
Dandelion	Taraxacum officinale	0.500	1.269	0.401	0.000	4.000	0.000	0.63	0.67	20.00
Sub-total								2.15	2.27	
Annual and biennial forbs										
Alyssum	Alyssum alyssoides	0.500	1.581	0.500	0.000	5.000	0.000	0.63	0.67	10.00
Musk thistle	Carduus nutans	0.400	0.699	0.221	0.000	2.000	0.000	0.51	0.53	30.00
Sub-total								1.14	1.20	

Table 2. Tabulated Results for the Mountain Shrub Community Type

Common Name	ScientificName	Avg	StDev	StErr	Low	High	Median	RelCov	RelCover	Freq
Sub-shrubs										
Louisiana sage	Artemisia ludoviciana	0.300	0.949	0.300	0.000	3.000	0.000	0.38	0.40	10.00
Oregon grape	Mahonia repens	0.200	0.422	0.133	0.000	1.000	0.000	0.25	0.27	20.00
Sub-total								0.63	0.67	
Shrubs										
Serviceberry	Amelanchier alnifolia	5.800	6.844	2.164	0.000	18.000	0.035	7.32	7.74	60.00
Mountain big sagebrush	Artemisia tridentata var vaseyana	12.600	8.276	2.617	0.000	26.000	0.135	15.91	16.82	80.00
Rubber rabbitbrush	Chrysothamnus viscidiflorus	2.200	6.268	1.982	0.000	20.000	0.000	2.78	2.94	30.00
Snowberry	Symphoricarpos oreophilus	0.300	0.675	0.213	0.000	2.000	0.000	0.38	0.40	20.00
Sub-total								26.39	27.90	
Cacti and succulents										
Prickly pear	Opuntia polyacantha	0.300	0.675	0.213	0.000	2.000	0.000	0.38	0.40	20.00
Sub-total								0.38	0.40	
Trees										
Big toothed maple	Acer grandidentatum	46.400	24.172	7.644	0.000	93.000	0.455	58.59	61.95	90.00
Sub-total								58.59	61.95	
Total Vegetation Cover (with annual grasses included)										
		79.200								
Total Vegetation Cover (annual grasses not included)										
		74.900	11.348	3.588	60.000	94.000	0.745			100.00
Litter		14.889	8.085	2.695	1.000	27.000	0.150	0.00		100.00
Rock		13.750	4.717	2.358	7.000	18.000	0.000	0.00		100.00
Bare Soil		2.833	1.472	0.601	1.000	5.000	0.015	0.00		100.00

Table 2. Tabulated Results for the Mountain Shrub Community Type

Common Name	ScientificName	Avg	StDev	StErr	Low	High	Median	RelCov	RelCover	Freq
Total Ground Cover		98.300	1.829	0.578	95.000	100.000	0.985			100.00

Devils' Slide Soil and Vegetation Baseline Assessment

Table 3. Recommended seed mix for sagebrush community

Common Name	Scientific Name	Variety	PLS lbs	Seeds/ lb	Percent of mix
GRASSES					
Muttongrass	<i>Poa fendleriana</i>		0.5	890,000	13.3
Bluebush wheatgrass	<i>Pseudoroegneria spicata</i> var <i>spicata</i>	P-7	4.5	170,000	18.8
Great Basin Wildrye	<i>Elymus cinereus</i>	Magnar	2	130,000	7.7
Bottlebrush squirreltail	<i>Elymus elymoides</i>		1.5	192000	8.6
Slender wheatgrass	<i>Elymus trachcaulus</i>	Pryor	4	159,000	21.3
FORBS					
Indian paintbrush	<i>Castilleja chromosa</i>		0.05	4,900,000	7.3
Yarrow	<i>Achillea lanulosa</i>		0.1	2,770,000	4.1
SHRUBS					
Sagebrush	<i>Artemisia tridentata</i> var <i>vaseyana</i>		0.25	2,500,000	18.6
TOTAL			12.8		

This seed mix averages to about 76 seeds per square foot.



Devils' Slide Soil and Vegetation Baseline Assessment

Table 4. Recommended seed mix for Mountain Shrub Community

Common name	Scientific name	Variety	PLS lbs	# seeds/ lb	Percent of mix
GRASSES					
Canada bluegrass	<i>Poa compressa</i>		0.2	2,500,000	16.8
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	p-7	4	140,000	18.9
Great Basin Wildrye	<i>Elymus cinereus</i>	Magnar	2	130,000	8.8
Slender wheatgrass	<i>Elymus trachcaulus</i>	Pryor	5	159,000	26.8
FORBS					
Indian paintbrush	<i>Castilleja chromosa</i>		0.02	4,900,000	3.3
Sulfur flower	<i>Eriogonum umbellatum</i>		0.5	209000	3.5
Yarrow	<i>Achillea lanulosa</i>		0.05	2,770,000	4.7
Showy golden eye	<i>Helianthus multiflorus</i>		0.5	1055000	3.6
SHRUBS					
Snowberry	<i>Symphoricarpos oreophilus</i>		1	75,000	5.1
Sagebrush	<i>Artemisia tridentata</i> var <i>vaseyana</i>		0.25	2,500,000	8.4
TOTAL			13.9		

This seed mix averages to about 68 seeds per square foot.



APPENDIX A – PHOTOS OF SELECTED VEGETATION TRANSECTS



Devils' Slide Soil and Vegetation Baseline Assessment

Transect 2- Sagebrush Azimuth 305°



Transect 6-Sagebrush Azimuth 122°

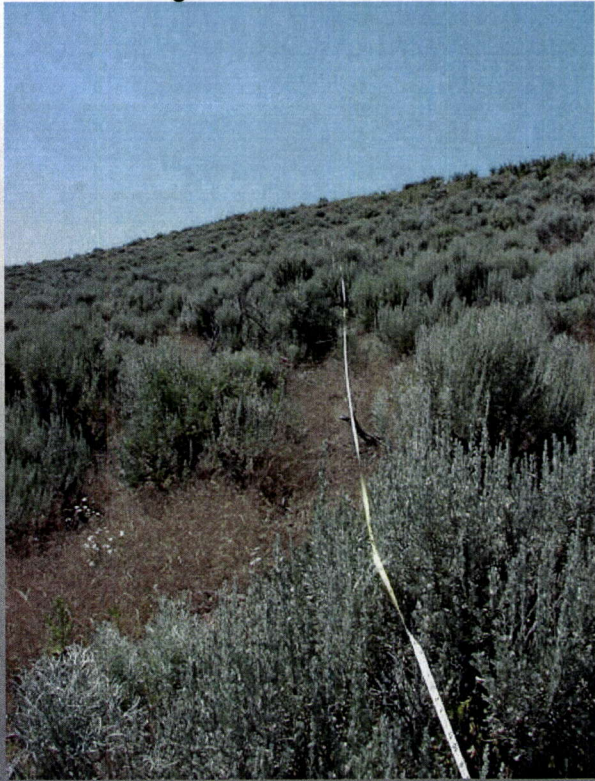


Transect 4-Sagebrush Azimuth 228°

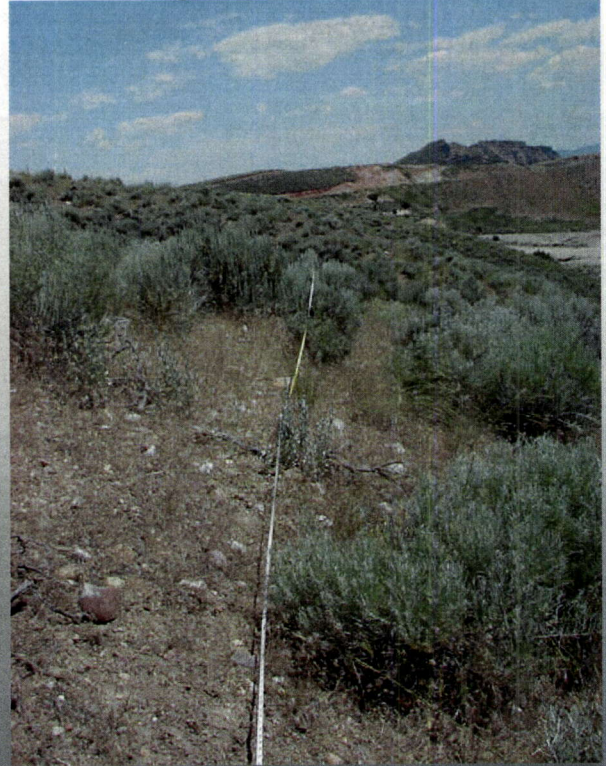


Devils' Slide Soil and Vegetation Baseline Assessment

Transect 8-Sagebrush Azimuth 314°



Transect 7-Sagebrush Azimuth 146°



Transect 10-Sagebrush Azimuth 34°



Mountain Shrub Community- Transect 4



Understory of Mountain Shrub Community



APPENDIX B- SOIL TEST RESULTS



Devils' Slide Soil and Vegetation Baseline Assessment

Soil Test Report and Fertilizer Recommendation

USU Analytical Labs

Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)
www.usual.usu.edu

Date Received: 7/18/2005
Date Completed: 8/1/2005

Name: MINDY WHEELER
Address: 4203 SUNRISE DR
PARK CITY UT 84098

Phone: 801-699-5459
County:

Lab Number: 5011618

Grower's Comments:

Acres in Field:

Identification: 07-07-05 DEVILS SLIDE TRA 2

Crop to be Grown:

Soil type stb

Soil Test Results			Interpretations	Recommendations
Texture		Sandy Loam		
pH		7.8	Normal	
Salinity - ECe	dS/m	0.5		
Phosphorus - P	mg/kg	36		
Potassium - K	mg/kg	325		
Nitrate-Nitrogen - N	mg/kg	2.64		
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	3.6		
SAR		0.72	Soil Not Sodic	

Notes

CEC: 14.6

CONTACT THE LAB WITH WHAT YOU ARE GROWING FOR RECOMMENDATIONS

For further assistance, please see your County Agent --



WP Natural Resource Consulting, LLC

Devils' Slide Soil and Vegetation Baseline Assessment

**Soil Test Report
and
Fertilizer Recommendation**

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Date Received: 7/18/2005
Date Completed: 8/1/2005

Name: **MINDY WHEELER**
Address: **4203 SUNRISE DR**

Phone: 801-699-5459

PARK CITY UT 84098

County:

Lab Number: 5011619

Grower's Comments:

Acres in Field:

Identification: 07-07-05 DEVILS SLIDE TRA 7

Crop to be Grown:

*on order blw
9/16/05*

Soil Test Results			Interpretations	Recommendations
Texture		Sandy Loam		
pH		7.8	Normal	
Salinity - ECe	dS/m	0.65		
Phosphorus - P	mg/kg	24		
Potassium - K	mg/kg	231		
Nitrate-Nitrogen - N	mg/kg	2.86		
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	2.4		
SAR		0.65	Soil Not Sodic	

Notes

CEC: 11.8

CONTACT THE LAB WITH WHAT YOU ARE GROWING FOR RECOMMENDATIONS

or further assistance please see your County Agent --



WP Natural Resource Consulting, LLC

Devils' Slide Soil and Vegetation Baseline Assessment

Soil Test Report
and
Fertilizer Recommendation

USU Analytical Labs

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Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)
www.usual.usu.edu

Date Received: 7/18/2005
Date Completed: 8/1/2005

Name: MINDY WHEELER
Address: 4203 SUNRISE DR
PARK CITY UT 84098

Phone: 801-699-5459
County:

Lab Number: 5011620 Grower's Comments: Acres in Field:
Identification: 07-07-05 DEVILS SLIDE 145²
Crop to be Grown:

Soil Test Results			Interpretations	Recommendations
Texture		Sandy Loam		
pH		7.7	Normal	
Salinity - ECe	dS/m	0.5		
Phosphorus - P	mg/kg	27		
Potassium - K	mg/kg	197		
Nitrate-Nitrogen - N	mg/kg	2.73		
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	4.0		
SAR		0.50	Soil Not Sodic	

Notes

CEC: 15.3
CONTACT THE LAB WITH WHAT YOU ARE GROWING FOR RECOMMENDATIONS

For further assistance, please see your County Agent --

